

REMARKS

Claims 1, 2, 4-6, 8-10, 12, 14-16, 18-20, 22-26, 29-41, 43-48, 51-54, 56-58, 60-68, and 71-82 are pending, with claims 1, 9, 12, 19, 22, 30, 34, 43, 45, 52, 53, 61, 64, and 72 being independent. Claims 1, 12, 22, 34, 43, 45, 52, 53, 64, and 72 have been amended. Support for the claim amendments is found in the Specification, see for example, [0018], [0024], and [0038]-[0039]. No new matter has been added. Reconsideration and allowance of the above-referenced application are respectfully requested.

Examiner Interview Summary

Examiner Samir Wadie Rizk is thanked for the telephone interview held on November 22, 2011 with Mr. Fryckman. The substance of the interview included a discussion of the language of the independent claims and the claim rejections under 35 U.S.C. 103 as indicated by the Office Action dated September 8, 2011. No agreement was reached.

Rejections Under 35 U.S.C. § 101

Independent claim 64 and its dependent claims stand rejected for allegedly not being compliance with 35 U.S.C. § 101. Independent claim 72 and its dependent claims stand rejected for allegedly not being compliance with 35 U.S.C. § 101. Without conceding the propriety of the rejections, claims 64 and 72 have been amended to obviate their respective rejections. Thus, withdrawal of the rejections under 35 U.S.C. § 101 is respectfully requested.

Rejection Under 35 U.S.C. § 103

Claims 1, 2, 4-6, 8-10, 12, 14-16, 18-20, 22-26, 29-41, 43-48, 51-54, 56-58, 60-68, and 71-82 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Rothberg (US 7,136,244) and Takashi (Takashi et al., US 6,519,715). This contention is respectfully traversed.

Independent claims 1, 12, 22, 34, 45, 53, and 64

Independent claim 1 has been amended and now recites in part "a control circuit that determines whether the discrete values are adequately indicated based on output of the detector, that initiates the retry mode when the discrete values are not adequately indicated, and that determines whether the discrete values are adequately indicated from the interpretation of the new signal in the retry mode based on a measurement of differences between hard decisions indicated by the new signal and hard decisions indicated by the current signal; and an error correction circuit in communication with the detector and the averaging circuit to provide a signal quality metric that is based on output of the detector, wherein the control circuit uses the signal quality metric to selectively exclude a signal of the group of signals from the average" (emphasis added). The prior art fails to teach or suggest each and every feature of claim 1.

Rothberg discloses that a disk controller reads data from a target sector and averages the data with read data stored in a buffer (See FIG. 1B reference character 20). Rothberg discloses:

At step 68 the target sector is read N times and the resulting read data averaged. At step 70 the averaged read data is processed in an attempt to recover the data sector. If at step 72 the data sector is still unrecoverable, and at step 74 there are more tracking offset settings to try, then the process reiterates starting with step 66. In one embodiment, the target sector is read one time at step 68 and the tracking offset settings are cycled multiple times. In another embodiment, the target sector is read multiple times at step 68 over one cycle of the tracking offset settings. In yet another embodiment, the target sector is read multiple times at step 68 over multiple cycles of the tracking offset settings.

See Rothberg at col. 5, lines 54-66 (emphasis added). Rothberg uses all N of the read data.

Additionally, Rothberg discloses an averaging operation as "a number of estimated data sequences 32₀ - 32_N averaged together to generate the estimated data sequence 34 comprising the averaged data bits" (col. 4, lines 1-4). Further, Rothberg discloses "the averaged values used to assign the binary value to each averaged binary bit is also used to generate an erasure pointer for increasing the number of errors corrected by the error correction code 30" and "This is illustrated

in FIG. 4 which shows a reliability metric generated for each bit in the estimated data sequence 34" (col. 4, lines 27-32). All of Rothberg's estimated data sequences 32₀ - 32_N are used to generate a reliability metric for each bit, which is clearly indicated in Rothberg's FIG. 4. Rothberg does not exclude signals from an average. Thus, Rothberg fails to teach or suggest wherein the control circuit uses the signal quality metric to selectively exclude a signal of the group of signals from the average as claimed.

Takashi describes signal processing apparatus and a data recording and reproducing apparatus including local memory processor. Takashi fails to cure the above identified deficiencies of Rothberg. For at least these reasons, claim 1 is allowable over Rothberg and Takashi.

Further, Rothberg and Takashi fail to teach or suggest a control circuit that determines whether the discrete values are adequately indicated from the interpretation of the new signal in the retry mode based on a measurement of differences between hard decisions indicated by the new signal and hard decisions indicated by the current signal as claimed. For at least these additional reasons, claim 1 and its dependent claims are allowable over Rothberg and Takashi.

Independent claim 12 has been amended and now recites in part "a control circuit in communication with the averaging circuit to determine whether the discrete values are adequately indicated based on output of the detector, initiate a retry mode when the discrete values are not adequately indicated, cause interpretation by the detector in the retry mode of a new read signal comprising an average that is determined responsive to a group of signals, the group of signals comprising one or more previous signals stored in the buffer and a current read signal, and determine whether the discrete values are adequately indicated from the interpretation of the new read signal in the retry mode based on a measurement of differences between hard decisions indicated by the new signal and hard decisions indicated by the current signal; and an error correction circuit in communication with the detector and the averaging circuit to provide a signal quality metric that is based on output of the detector, wherein the control circuit uses the signal quality metric to selectively exclude a signal of the group of signals from the average"

(emphasis added). For at least reasons similar to the reasons noted for claim 1, claim 12 and its dependent claims are allowable over Rothberg and Takashi.

Independent claim 22 has been amended and now recites in part "averaging, in the retry mode, multiple signals to produce an averaged signal to improve interpretation of the input signal, the multiple signals including at least two or more of the input signal and the second signals, wherein the averaging comprises using the signal quality metrics to selectively exclude a respective signal from the averaged signal" (emphasis added). For at least reasons similar to the reasons noted for claim 1, claim 22 and its dependent claims are allowable over Rothberg and Takashi.

Independent claim 34 has been amended and now recites in part "means for using the signal quality metrics to selectively exclude a respective signal from the averaged signal" (emphasis added). For at least reasons similar to the reasons noted for claim 1, claim 34 and its dependent claims are allowable over Rothberg and Takashi.

Independent claim 45 has been amended and now recites in part "means for using the signal quality metrics to selectively exclude a respective signal from the averaged signal" (emphasis added). For at least reasons similar to the reasons noted for claim 1, claim 45 and its dependent claims are allowable over Rothberg and Takashi.

Independent claim 53 has been amended and now recites in part "means for determining whether the discrete values are adequately indicated based on output of the means for interpreting, initiating the retry-mode means when the discrete values are not adequately indicated, and determining whether the discrete values are adequately indicated from the interpretation of the new signal by the retry-mode means based on a measurement of differences between hard decisions indicated by the new signal and hard decisions indicated by the current signal; means for providing a signal quality metric that governs which signals are averaged; and

means for using the signal quality metric to selectively exclude the corresponding signal from the average" (emphasis added). For at least reasons similar to the reasons noted for claim 1, claim 53 and its dependent claims are allowable over Rothberg and Takashi.

Independent claim 64 has been amended and now recites in part "averaging, in the retry mode, multiple signals to produce an averaged signal to improve interpretation of the input signal, the multiple signals including at least two or more of the input signal and the second signals, wherein the averaging comprises using the signal quality metrics to selectively exclude a respective signal from the averaged signal" (emphasis added). For at least reasons similar to the reasons noted for claim 1, claim 64 and its dependent claims are allowable over Rothberg and Takashi.

Independent Claims 9, 19, 30, 43, 52, 61, and 72

The Office asserts that "Claims 9, 12, 19, 22, 30, 34, 43, 45, 52, 53, 61, 64 and 72 are rejected for the same reasons as per claim 1" (9/8/11 dated Office Action, page 7). The Office did not produce a prima facie showing of obviousness for independent claims 9, 19, 30, 43, 52, 61, and 72. The Office proffered a single rejection and explanation for all of the independent claims. However, the subject matter of the independent claims differs.

For example, independent claim 9 recites "an averaging circuit in communication with the buffer and the detector to cause interpretation, by the detector during a retry mode, of an averaged signal comprising a weighted average of one or more previous signals stored in the buffer and a current signal;... wherein the averaging circuit determines the weighted average based on weights respectively associated with the one or more previous signals and the current signal, wherein the weights are based on respective signal quality measures " (emphasis added), whereas claim 1 does not. As indicated by the Office's cursory rejection of claim 9, the Office did not examine the features of claim 9. Moreover, independent claims 19, 30, 43, 52, 61, and 72 also contain features that are not present in claim 1. Thus, the Office's rejection of claims 9, 19, 30, 43, 52, 61, and 72 is improper and should be withdrawn.

Absent a notice of allowance for all claims, the Assignee's representative respectfully request a non-final office action that explains the Office's position for each of the independent claims so that the Assignee's representative can properly address the Office's rejection.

CONCLUSION

The foregoing comments made with respect to the positions taken by the Office are not to be construed as acquiescence with other positions of the Office that have not been explicitly contested. Accordingly, the above arguments for patentability of a claim should not be construed as implying that there are not other valid reasons for patentability of that claim or other claims.

In view of the amendments and remarks herein, claims 1, 2, 4-6, 8-10, 12, 14-16, 18-20, 22-26, 29-41, 43-48, 51-54, 56-58, 60-68, and 71-82 should be in condition for allowance. A formal notice of allowance is respectfully requested.

Please apply any necessary charges or credits to deposit account 06-1050.

Respectfully submitted,

12/7/11
Date: _____

/John-Paul Fryckman/

John-Paul Fryckman
Reg. No. 62,880

Customer Number 26200
Fish & Richardson P.C.
Telephone: (858) 678-5070
Facsimile: (877) 769-7945